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ABSTRACT

This study demonstrates that built environment education fits well into the existing curricula, meets objectives, and provides new directions for assessment in the classroom. The study examines what was happening in those classrooms using CUBE-produced curriculum materials. Sample assessment methods are provided for four differing educational settings to show the flexibility of the materials for diverse learning environments and learners. The table of contents includes: (1) "Introduction"; (2) "The Process"; (3) "The Educators and Their Settings"; (4) "Sample Assessments 1, 2, 3, 4"; (5) "Specific Objective Listing"; (6) "The Paradox of Assessment"; (7) "Resources"; and (8) "Curricular Correlation Chart." (EH)

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ED 420 603

An Evaluation of Built Environment Education in the Curriculum

A Study to Identify Methods for Integration, Teaching Strategies and Alternative Assessment for Built Environment Education

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Cooperative streetscape mural, PS1

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Evaluator • Dr. Kathryn Loncar
Educational Consultant • Karen Schauber

Christine Garrett • Classroom Teacher
Debbie Haltom • Cooperative Administrator
Debbie Kingrey • Classroom Teacher
Debbier Lerner • Classroom Teacher

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What is the Built Environment?

Anyplace where humans have intervened, by design or accident, in the natural environment.

What is CUBE?

The Center for Understanding the Built Environment (CUBE) seeks to educate citizens who will understand and actively participate in the development of a quality built and natural environment, one and interdependent. This means cities which work for adults and children; buildings and spaces which are healthy and aesthetically pleasing; streetscapes and landscapes which reach to the future while celebrating the past.

What is Built Environment Education?

Built Environment Education includes the study of any topic which helps to educate people to these common understandings and goals.

For more information, contact Ginny Graves, Center for Understanding the Built Environment, 5328 W. 67th Street, Prairie Village, Kansas 66208; telephone, 913/262-0691.

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Technical Bulletin #94-4: Assessment, July 1994

EVALUATION SUPPORTS TOTAL CROSS CURRICULUM INTEGRATION OF BUILT ENVIRONMENT EDUCATION

Evaluator concludes that built environment education

- **meets curricular objectives**
- **includes breakthrough teaching strategies**
- **provides strong potential for alternative assessment**

The results of a three year study on the use and assessment of built environment education concepts in the classroomare are available. Two curricula developed by the Center for Understanding the Built Environment, **Walk Around the Block,** Using Our Communities in the Present to Learn about the Past and Plan for the Future, and **Box City**, An Interdisciplinary Experience in Community Planning, served as the core teaching material.

Project Background

From the beginning, the strength of built environment education has been its interdisciplinary nature. Where did it belong? Is it art? Is it science? Is it math? Is it civics? This difficulty in categorizing it has sometimes made it a difficult "sell" to school districts who wanted or needed a neat compartmentalization. Thus began the effort to match the objectives of built environment education with those of school district tests, state-mandated assessment tests or other forms of evaluation. Being able to demonstrate the "fit" helps educators and administrators alike to feel comfortable about introducing built environment education methods into the curriculum. The built environment itself has always been a part of the curriculum, but not always taught in the ways demonstrated in this study—hands on, experiential, community-referenced, ways that we know from our experience with educators are providing breakthrough, energizing teaching and learning experiences for both educators and students.

Westridge students construct covered wagon.

The purpose of this study was to demonstrate that built environment education fits well into the existing curriculum, meets objectives and provides new directions for assessment.

Purpose

Dr. Kathryn Loncar, School of Education, University of Missouri at Kansas City, agreed to serve as evaluator of what was happening in those classrooms using CUBE-produced curriculum materials. Dr. Loncar became familiar with CUBE through her experiences with teacher training and educators who used CUBE's **Box City** and **Walk Around the Block** curricula. Dr. Loncar, with CUBE, attempted to determine several things:

1. How are teachers incorporating built environment education into the already existing designated curriculum?
2. Did built environment education lend itself to different teaching and learning styles?
3. How were these educators evaluating the results of their teaching?
4. Is there a process that any educator could undertake in order to prepare assessment tools for built environment education topics, regardless of school, district or state mandates?

Summarizes Dr. Kathryn Loncar, University of Missouri Kansas City (UMKC) School of Education, **"The Walk Around the Block** (WAB) curriculum embodies three important educational principles. First, this curriculum brings children a rich, integrated, interdisciplinary involvement in history, economics, geography, mathematics, language and literature, natural science, and the visual arts.

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Second, this curriculum requires an inquiry-based hands-on learning style that develops in children not only basic skills in literacy and numeracy, but also many of the skills and techniques that humans use to manage and apply knowledge in various human endeavors. Third, this curriculum recognizes the social nature of learning by allowing children to function as a member of a 'learning community' or 'learning team.' The incorporation of these three principles in **Walk Around the Block** make this curriculum educationally sound and compatible with current modes of curriculum development and classroom practice."

Conflict and Cooperation

Ginny Graves, project coordinator, points to Dr. Loncar's comments regarding the use of change, conflict, and cooperation and their impact on a culture which is an inherent part of the **Walk Around the Block** activities.

Dr. Loncar reports, "In one instance, students created a Greek Parthenon out of plastic material. Quite often the students cited that the most important part of the project, to them, was the working out of disagreements which took place as they built it. The 'Parthenon' could be inflated for story-telling and math projects in the classroom and deflated for storage. The students reflected that division of labor and collaboration were important in other parts of their lives as well. The 'transference of skills' is easily obtainable through the approach learned in built environment activities."

Key Skills

As a part of the assessment project, key skills such as those listed on most state mastery tests were identified and keyed to specific projects in the **Walk Around the Block** curriculum. "This chart will not only be useful for those working with this particular curriculum, but those working in the area of built environment education in general," comments Karen Schauber, educator, and a member of the WAB production team. The *Curricular Correlation Chart* follows the *Sample Assessment* results.

A much greater discussion of concepts and methods is contained in Dr. Loncar's preliminary paper on this topic. Many of the comments and descriptions included here refer to Dr. Loncar's study.

Karen Schauber, CUBE cadre, comments on this project from the point of view of the resource teacher or overseeing educator.

"Whenever working with teachers from the different states or districts, I must familiarize myself with the title of the group of skills known as 'learning objectives,' 'basic competency skills,' 'program of studies,' 'curriculum objectives,' 'essential elements' or 'outcomes.' Whatever the title, these group of skills are the backbone of all lessons and activities, no matter which classroom, no matter what grade, no matter which state.

"As always, teachers must match their lesson objectives with their own particular district's objectives and assessment strategies. Beginning teachers may want to fully define all elements present in their lesson, matching them to their long range plans.

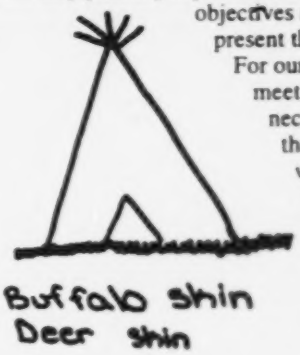
"Assessment is a critical component of any validation of new curriculum topic, or even a different way of approaching curriculum, i.e., built environment education. There are many forms of assessment. Every classroom assesses differently. If the classroom is objective based, the teacher methods will reflect that.

"The reason assessment has changed, is because of the recognition of the many learning styles of children. The case studies in this report reflect how varied the assessment and the personalities of the teachers can be.

"Built environment education or the use of community-relevant curriculum, lends itself to the many learning styles of students but also to many forms of assessment."

Diverse Sites

The following assessment methods illustrate how three teachers from the Metropolitan Kansas City area and one from rural Kansas designed activities, congruent with their districts' state objectives/outcomes. The Metropolitan Kansas City Area represents two separate states, six counties, and 40 school districts. It is unlike a situation where the entire county is also the school district, i.e., Hillsborough County in Florida is the school system for the entire county, and when a decision is made for one, it is made for all. Because of this diversity, and because of its wide variety of approaches to assessment and accountability, Greater Kansas City combined with the rural site, may possibly represent a sampling of curriculum objectives and assessment methods present throughout the United States. For our purposes and the need to meet a national agenda, it was necessary to take into account the challenges which exist within each state and district and provide a demonstration generic process. For individual educators, identifying and matching their particular district's objectives is sufficient.



THE PROCESS

In addition to the usual discussions about the effectiveness of measuring knowledge, we are facing three challenges in evaluating the effectiveness of built environment education activities:

1. These activities or skills may **not** be identified on state mandated achievement tests (The teaching methods and assesment used in the built environment education community are ahead of the majority of the educational community—especially at the administrative level— not only in theory, but content and practice.)
2. The activities and skills will vary from state to state, district to district, school to school, class to class, child to child.

3. The very essence of alternative assessment means that it is individualized for a particular situation or even a particular child.

To determine valid ways to establish alternate assessment methods for built environment education, CUBE worked with a number of educators and evaluators over a period of five years. Since terminology and objectives vary from state to state, we realized that we needed to devise a method for the **process** of developing alternative assessment and built environment education rather than specific questions or tests themselves.

The following represents, through trial and error, those efforts and the methods we have devised.

Three educators in particular became very involved in this process and contributed and tested over and over to make sure that this assessment method was working. Dr. Kathryn Loncar, UMKC School of Education, observed two of the classes, Lerner's and Garrett's, over an extended period of time, visiting during the pre-test, during the unit in process, and at the time of the post-test and evaluation.

The Process Procedure

The process involved a review, by the educators, of the outcomes for a particular year, unit, theme, and curriculum area. They:

- established objectives (what they wanted the children to know)
- reviewed the regular curriculum to find the places where built environment materials and activities and the objectives came together
- identified the appropriate activity for the objective
- created pre- and post-tests for the activity
- gave the pre-test to determine the knowledge base of the students and who had knowledge to share
- determined what needed to be taught

The CUBE *Curricular Correlative Chart* was helpful in identifying the generic skills and related activities.

Many of the activities were based on materials in CUBE's **Walk Around the Block** and **Box City**. The lesson pages for those activities are included within the classroom setting description when appropriate. Educators were not limited, however, when there were other activities which fit the teachers' needs and they felt free to use those as well. (Quite often these innovations are incorporated into CUBE curriculum revisions.) Examples follow and proceed from a setting which was somewhat traditional to inventive and non-traditional classrooms.

The text begins with Debbie Kingrey's classroom as representative of the typical classroom teacher who becomes interested in built environment education through a short workshop or seminar, but probably has not had a great deal of background in using the community as the primary resource or in the hands-on, experiential, cross disciplinary approach that the built environment provides.

THE EDUCATORS AND THEIR SETTINGS:

Debbie Kingrey (Sample Assessment 1). This study site is a fourth grade class at Westridge Elementary School in the Raytown School District, located in the eastern part of the Kansas City area. It is a neighborhood school in a predominantly white, middle to lower-middle class population. Kingrey's classroom consisted of 23 students ages 9 and 10 years old. Debbie Kingrey served as a student teacher with Debbie Lerner and received training in the alternative assessment modes there. She did not have extensive background in built environment education prior to working with Ms. Lerner. Kingrey was not a part of the evaluation by Dr. Loncar. We used Kingrey's classroom to evaluate whether or not the generic method of developing a concept and writing a pre-and post-test developed in classrooms with experienced teachers, would work with a less experienced teacher in a different school, different school district and with a slighlty lower socio-economic setting.

Debbie Lerner (Sample Assessment 2). The site of this study is a primary level classroom at Red Bridge Elementary School in the Center School District which is located in the southern part of Kansas City, Missouri. It is a neighborhood school, predominantly white, middle class population. There were 26 students in this class, ranging in age from 6-8 years old, 13 boys and 13 girls. In this setting, the teachers devise the methods and materials to use in their classrooms.

Chris Garrett (Sample Assessment 3). The site of this study is a 6th grade classroom at Arrowhead Elementary School in the Shawnee Mission School district in Shawnee Mission, Kansas, a suburb of Kansas City. Arrowhead Elementary is a neighborhood school with a predominately white middle-class population. The grade's objectives are those prescribed by the Shawnee Mission District. There are no special programs or content themes in place in the school. The classrooms are generally self-contained with a variety of special services support. The 25 students in this classroom range in age from 11 to 13 years old. There were 13 boys and 12 girls in the class. *The school is not text driven or content driven, but objective based.*

Debbie Haltom (Sample Assessment 4), the fourth educator involved in the study, directs teachers of gifted students in western Kansas through the services of the High Plains Educational Cooperative. An educational cooperative advises and assists educators with their projects, utilizing a variety of delivery systems and including satellite instruction. Ms. Haltom received no one-on-one training in built environment education, but was introduced to the **Box City** curriculum through a friend and subsequently produced the Individualized Education Plan and Teacher and Student Evaluation tools included in this document. Her comments regarding alternative assessment methods are inciteful and her subsequent solution to the challenge of assessment for the built environment education activity called **Box City** is creative and satisfying for her particular site and school district.

SAMPLE ASSESSMENT METHODS

Sample Assessment 1

Kingrey Classroom (Grade 4)

Mapping Skills

Students were asked to apply city planning definitions to a geographical relationship in order to provide relevance.

Activity pages in **Walk Around the Block** which support the mapping activities are *Mapping Your Mind, The Map and Reaching Consensus.*

Teaching Objectives

The learner will be able to, when provided a blank sheet of paper, draw his/her state.

The learner wil be able to indicate and label two major cities within that state.

The learner wil be able to designate and label the capital of that state and accurately draw and label a major river of the state. (See *Specific Objective Listing*, Nos. 1-3.)

Pre- and Post-Test

Before beginning the unit study on Missouri, students were asked to draw the state of Missouri from memory. They were to include four places on this map:

- Kansas City
- St. Louis
- The capital of Missouri denoted by a star
- the Missouri River

On the back of the paper they were asked to define these city planning terms

- landmark
- edges
- path

Not only did the students define the above, but on the back of the paper, they were asked to list the names, states or land forms that formed the "edges" of the state of Missouri. They were also to include a definition of "edge" and the direction that a state or land form lay in relation to the state of Missouri.

The following statements were observed from the the pre- and post-tests.

Pre-Test:

"I don't know" and "I am stupid."

Post Test:

"Edges are boundaries and boarders" (*sic*).

"Directions are *East:* Tennessee, Kentucky; *NE:* Illinois; *North:* Iowa; *West:* Kansas; *Northwest:* Nebraska; *South:* Oklahoma, Arkansas. It's like a border."

Path: "Santa Fe Trail. Roads or paths that they used to get from one place to another and today they are places where there is no grass and we use to go through the woods. Then: trails. Now: streets, highways, roads."

Landmark: "If you was going someplace you would follow it (sic). A historic trail. A mark showing how far you are going. Reserved land."

Mapping Your World

Teaching Objectives

The learner will define basic city planning terms using phrases or sentences. (See *Specific Objective Listing*, No. 4.)

The learner will be able to draw a map of the route to school, including "paths, nodes, landmarks, legend, compass rose."

The learner will be able to recreate a map of the Oregon Trail, including compass rose, legend, paths, landmarks, mileage between landmarks. (See *Specific Objective Listing*, No. 5.)

A. Students were asked to map the route from home to school. They were to include:

1. paths
2. nodes
3. three to four places they identify as landmarks during their trip each day
4. a legend
5. a compass rose

B. Students were asked to choose from three assignments:

- Draw a map of the Oregon Trail
- Draw a detailed map of a part of the Oregon Trail
- Draw a map of a make-believe trail that you took on a pioneering adventure

Each of these maps were to include the following:

1. compass rose
2. legend
3. paths
4. landmarks
5. mileage between landmarks

Students received background information which included this city planning vocabulary developed by Kevin Lynch, author of **Image of the City.**

MAJOR		MINOR
	Paths are the channels along which you move. Walkways, streets and highways are paths.	
	Edges are boundaries between two regions. Rivers, forests, mountains, and hills all create edges.	
	Nodes are strategic spots in a city, sometimes junctions or crossings of paths. A concentration.	
	District is an inside area of recognizable character. Every city is made up of a number of districts.	
	Landmark is a simply defined physical object, such as a sign or a building. Some are visible from a distance.	

MissouriHomes

Teaching Objectives

The learner will be able to identify **shelter** as a basic need.

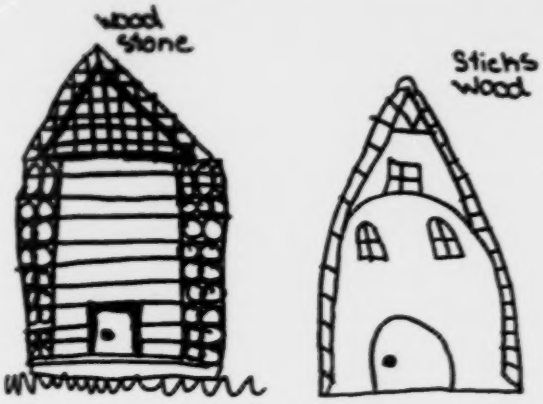
The learner will list building materials native to Missouri.

The learner will replicate early dwellings.

The learner will define **landmark** and provide appropriate examples. (See Specific Object Listing, Nos. 6-7.)

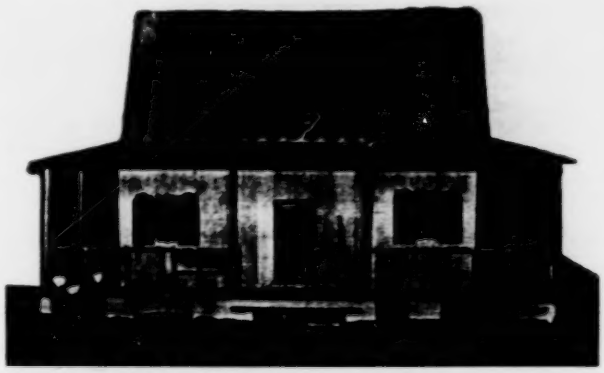
Pre-Test

Draw and describe building materials used in the Missouri area (include Native Americans, early settler structures, Conestoga and Prairie Schooner wagons and their uses.)

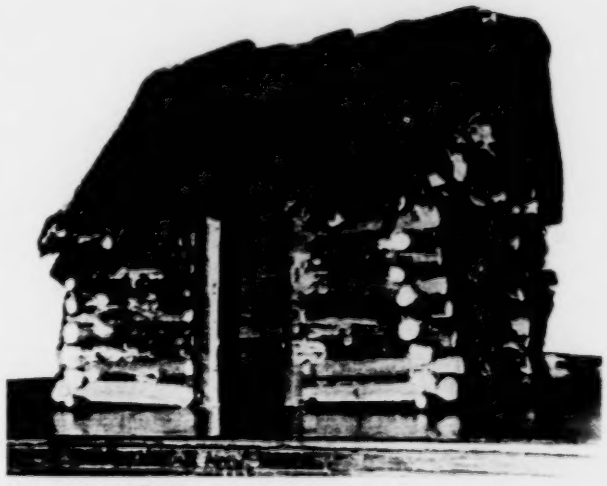


Post Test

1. Replicate pre-test
2. Create a landmark structure using a medium of your choice. (Stress accuracy.)

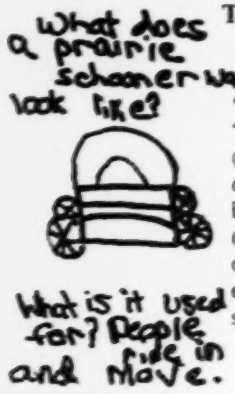


French Log Cabin (vertical logs)



American Log Cabin

Other sample exercises:



Transportation as Home

A creative approach to teaching transportation was Kingrey's theme of "transportation vehicle as home." (An extension of this idea is the obvious link with reptiles with bony shells (turtle) and mollusks (snail) which would offer an obvious tie between the built environment and environmental science.)

Teaching Objectives

The learner will replicate two types of pioneer wagons.

The learner will be able to identify the functions of two pioneer wagons.

The learner will identify essential supplies for use during a wagon journey.

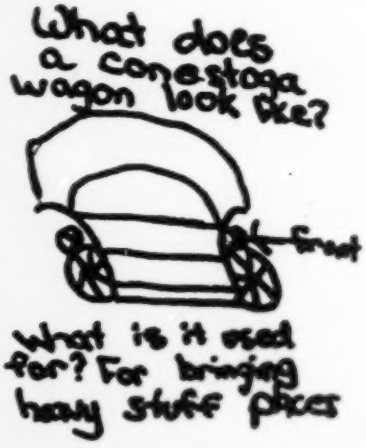
The learner will compare and contrast. (See *Specific Objective Listings* Nos. 6-8.)

Directions:

1. Observe photos of Conestoga and Prairie Schooners.
2. Sketch each wagon type.
3. List use for each.
4. List structural differences between the two.
5. List four items you would take on your journey and why (importance of each).

Oregon Trail Essay

Students were to write about an 1840's story about traveling on the Oregon Trail from the perspective of the Prairie Schooner Wagon. They were asked to include as much information as they could remember in their story.



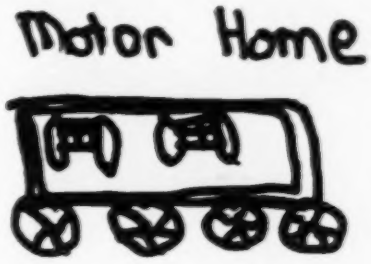
Contemporary Travel Vehicles

Teaching Objectives

The learner will apply social studies concepts to a narrative composition.

The learner will identify **Basic Needs.**

The learner will compare and contrast. (See *Specific Objective Listing* Nos. 6-8.)



Directions:

1. Write about a trip taken to Oregon set in modern times.
2. List what possessions your family would take. They must fit into whatever mode of transportation you have chosen.
3. Apply your knowledge of the pioneer's journey to describe the present day journey, comparing and contrasting all aspects.

Mapping Your Mind

Make your own example of **THE MAP** activity and copy it to an overhead transparency. Use the projected image to demonstrate the paths and areas described below. Make this interactive. For example, "I just saw a watertower. What symbol shall we use for water tower?" Remind the students of the map legend symbols they created.

We are getting ready to make a map. Before you begin, think about the same things that city planners think about when they help to plan or organize the city. You are the city planner. In this example, we are creating a map of the places between your home and your school. "Map" in your mind:

1. The driving path that you use to go from your house to your school.
2. Other paths that you use.
   Example: Perhaps you return home using a different route.
3. The path you use for walking.
4. Major "signals" that help you to reach your destination.
   Example: Buildings, directional signs, monuments and art, geographic formations, what else?
5. Busy "gathering" places along the route.
   Example: shopping centers, ice cream parlors, fast food restaurants, gas stations
6. Other places which are not quite as busy.
   Example: a place kids gather in front of the school, a dry cleaners, a fountain, a bus stop
7. An area that is so identifiable or of such scale that you could give it a name.
   For example: a neighborhood, a small city
8. Any major boundaries such as geographic features like rivers, forests, mountains or hills or man-made boundaries like railroad tracks, highways and freeways.

City planners give these features a symbol. They are at the bottom of the **MAP LEGEND.**

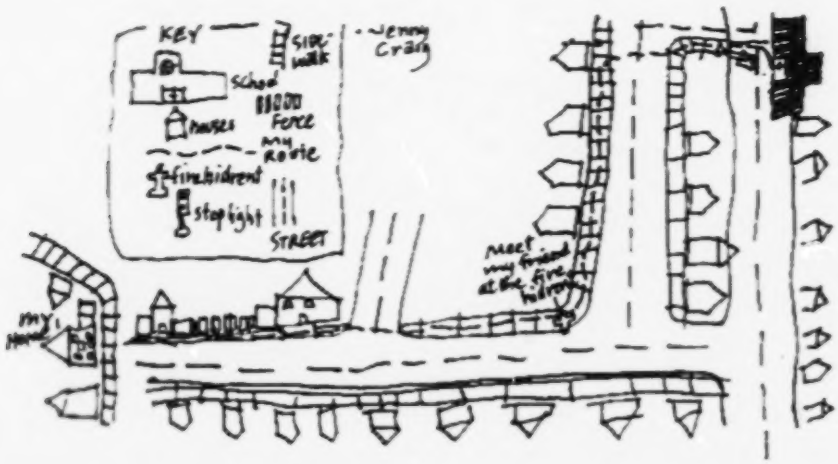
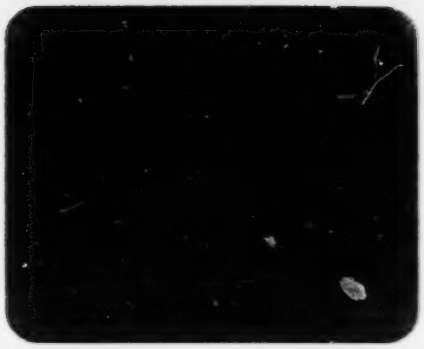


Illustration: Judith K. Major and students at Meadowlark School



Reaching Consensus

As a group activity, generate a composite map based upon the information in the students' maps.

As the students give you specific kinds of information, determine, using the consensus method, how the symbol for each item will appear on the map. Begin to create a common **MAP LEGEND** for the group to use. (Students will discover the importance of a common visual vocabulary when making and reading maps)

Complete the exercise by having the students use the city planning symbols to define the various sites on the individual maps.

Study a number of different kinds of maps to determine which method the class will use to present **The Block** for the study.

Bird's Eye Maps
Plat Maps
Sanborn Insurance Maps
Land Use Maps

(See DEFINING THE BLOCK.)

The students in Esther Tuttle's Spanish class took a **Walk Around the Block** and labeled their maps in Spanish.

Walk Around the Block: Northwest High School

Reference The Image of the City: Kevin Lynch

Sample Assessment 2

Lerner Classroom (Grades 1-3)

Native Dwellings Unit

Teaching Objectives

The learner will be able to identify basic needs.

The learner will be able to identify regions of the United States.

The learner will be able to identify specific landforms typical of the Southwestern region of the United States.

The learner will be able to list materials used to build Native American shelter in the Southwestern region of the United States.

The learner will be able to correctly label specific shelter as Native Americans.

The learner will be able to list materials used to create shelter in the Midwest region of the United States today.

The learner will compare and contrast a southwestern pueblo with his/her own midwestern dwelling, identifying differences in materials, design and environment. (See *Specific Objective Listing*, Nos. 9-10.)

Student creates pueblo with adobe brick.

Pre-test:

- Draw a pueblo structure, using as much detail and surrounding environment as possible.

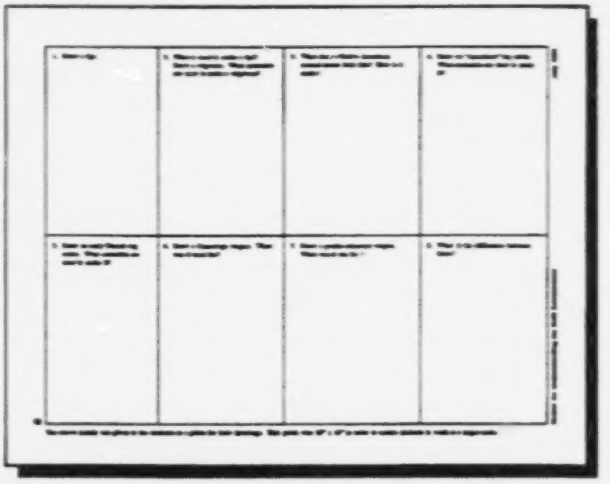
Post-test:

An additional eight-item test was attached, which asked students to:

- demonstrate their knowledge of the natural environment of the Southwest region of the United States
- include landforms, plants and animals
- compare and contrast a pueblo with their own homes listing building materials, design, and natural environment for each

The post-test was evaluated according to the improvement in volume of information provided by the student, as well as its accuracy. To assess whether the student could further apply knowledge, an oral discussion was maintained to determine if the same considerations are made for building today in the Southwest, and how the natural environment impacts building in any given region.

Both Lerner and Kingrey used a matrix which provides an organizational method for the student drawings and comments. A sample matrix follows.



1. Draw a tipi.	2. What is used to make a tipi? Draw a wigwam. What materials are used to make a wigwam?	3. What does a Native American mound house look like? How is it made?	4. Draw an "American" log cabin. What materials are used to make it?
5. Draw an early French log cabin. What materials are used to make it?	6. Draw a Conestoga wagon. What was it used for?	7. Draw a prairie schooner wagon. What was it used for ?	8. What is the difference between them?

July 1994

Center for Understanding the Built Environment

The above matrix was given to the students as a guide for their drawings. This guide was 12" x 18" in order to enable students to work at a larger scale.

Sample Assessment 3

Garrett Classroom (Grade 6)

Garrett stands at Pyramid opening.

Inflatables/Structure

The third classroom, Chris Garrett's, incorporated activities from **Walk Around the Block** into their social studies, particularly the early civilizations and specifically within the Greek theme, Art and Architecture in Ancient Greece. The culminating activity for this unit was a group activity, the building of a quarter scale model of the Parthenon, using polyurethane plastic sheeting, in a technique called "Inflatables." This technique requires the measuring and taping of the plastic sheeting, creating the components of the structure and then inflating it with a fan.

In the classroom, the teacher functions as a presenter of main task and sub-tasks, moderating and facilitating the processes of group discussion and decision-making. There are no pre-and post-tests *per se*, but students demonstrate their knowledge through the building of the structure. Students are divided into two working groups. One is responsible for building the square inner structure of the Parthenon, and the other is responsible for designing the columns for the front, sides and pediment.

Teaching Objectives

The learner will define and practice the term, "division of labor."

The learner will define and practice democracy, using collaboration and conflict resolution strategies.

The learner will design a structure to quarter-scale.

The learner will design a replica of a classical Greek temple. (See *Specific Objective Listing*, Nos. 11-15.)

The students demonstrated these skills:

- division of labor
- collaboration
- conflict resolution
- democracy in action

Additional "unexpected outcomes" occurred. During the building of the Parthenon columns, students discovered, through the process, the formula for *pi*; students devised mutually acceptable strategies for conflict resolution.

The students at Arrowhead School have built the following structures:

- Halloween Huts
- Parthenon
- Whale House
- Pyramid of Cheops
- Reading Bubble
- Mid-deck of the Space Shuttle
- Writing Habitat Gift

Student shares visual of Parthenon in front of inflated structure.

Garrett has shared this approach, through in-service training workshops, with a variety of curriculum-based educators including science, math, whole language and art. The following lesson plan, *Inflatable Habitats*, has developed as a result of the active interest in this approach.

INFLATABLE HABITATS

Inflatable Habitats are structures made of plastic, assembled in pieces, and "held up" or inflated, as their name implies, by air from a fan. An old favorite in the 70's, they are undergoing a revival as a teaching tool for math, science, and as an environmental "meeting space" for reading and other learning center activities. If students have mastered the making of a Box City and would like to concentrate on individual buildings and the investigation of a new material for building, Inflatable Habitats provide an exciting alternative.

Inflatables in the classroom add a new "dimensionality" to teaching and learning. Christine Garrett, the educator who organized these instructions says, "If the students have to make it and plan it, they are going to learn it. I use inflatables to teach anything and everything all year long." There is no set way to teach how to build an inflatable because the educator is the expert in classroom. Following are three options:

Materials:
- rolls of plastic---4 ml. weight, 20'x25'(4-6 rolls)
- 3 inch transparent tape, 3M preferred
- Tape measure
- Permanent markers*
- Tag board*
- Ordinary box fan
- * Optional

Option 1

- Break your class into groups.
- Distribute the same number of rolls of plastic to each group.
- Instruct your students to build a geometric shape using as much of the plastic as possible. At the same time, remind them that you will not supply more. The amount of tape each group will use depends on the number of seams in the shape. Keep lots on hand.

Option 2

This tends to cost more since the students are telling you what supplies they need. The advantage is the practice of the skills of working together without a teacher imposed plan.

- Pick one building and research its form, function, and style as well as the people who built and used it.
- Separate your class into groups according to architectural features to build.
- Provide time for each group to plan and implement their design making sure to remind them to check with other groups about proportion.
- Suggest the use of graph paper or other paper to make a model.

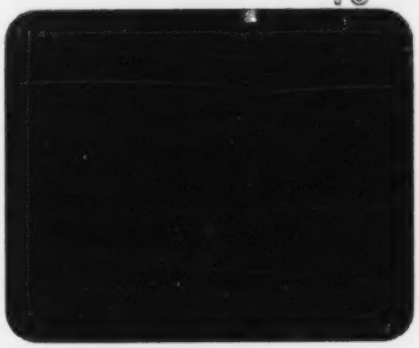
Option 3

- Determine the number of rolls you will provide.
- Provide graph paper and whole group time for several models to be produced.
- Give students the opportunity to select by vote the model they feel is the best.
- Allow students to break the work into steps and determine each person's responsibility.

Scientific and Mathematical Learnings:

- Air takes up space
- Transferal of two dimensional object to a three dimensional object---a cube has more than 4 sides.
- Man hours to build and how that affects cost
- Cost per square foot
- Correlation between circumference and diameter (Pi)
- Optical illusion
- Learn the term "scale" and apply it
- Practice with enlarging and reducing scale
- Time management

INFLATABLE HABITATS 2



- Research form, function, and style of building
- Reinforce note taking skills
- Culture study
- Learn the term "scale" and apply it
- Behavioral skills:
  - Huddling
  - One voice at a time
  - Encouraging words

Assessment

Take "on-task" readings at all times while the students are working. Additionally, announce the specific cooperative learning skills to look for each day. Anecdotal notes provide excellent data for conferencing with students at a later date. (Garrett walks around with a clip board and large size index cards for note-taking about each student.) Of course, all the factual and historical data can be tested either orally or on paper. A culminating event with informative scripts written by the students is also a perfect way to integrate more writing skills.

Storage and Re-use

Deflate and store in box. Roll up, folding in as proceed in similar procedure as the Star Lab reading laboratory. Tie ropes around to make handle. Throwing this structure away is not environmentally sound. Re-use is a given.

Extension

Garrett has incorporated *Inflatable Habitats* into social studies, particularly the early civilizations and specifically within the Greek theme, Art and Architecture in Ancient Greece. The culminating activity for this unit is a group activity, the building of a quarter scale model of the Parthenon. (A concrete understanding of scale occurred at the completion of this activity when students discovered that it was too large to fit in the cafetorium. Obviously, the selected quarter inch scale was too large.)

The students demonstrated these skills:

- division of labor
- collaboration
- conflict resolution
- democracy in action

Research included overview of books relating to the Parthenon. They looked for answers to the following "discover questions."

What *does* it look like?
What *did* it look like?
When was it built?
What was the purpose?
Who was the architect?
What were the social customs at the time that caused it to be built?
What's a frieze?
What's stylobate?
What's a pediment?
How many columns does it have?
What styles were the column capitals?
What is entasis?

Credit: **Educator: Christine W. Garrett, Arrowhead Elementary School, Shawnee Mission District**
Architect: John Knapp, Nebraska Architect in Schools

Sample Assessment 4

High Plains Educational Cooperative
Debbie Haltom

This setting is slightly different than the individual classrooms studied in Assessment 1, 2, and 3, in that it involves an entire region. Haltom is responsible for teacher training for the cooperative.

Haltom's approach particularly addresses alternative assessment methods.

Haltom chose to introduce teachers in her cooperative district to an activity called **Box City, An Interdisciplinary Experience in Community Planning**. It is an exercise in community planning in which the students identify building types and uses in the community, produce the buildings and green spaces, play a role, place and determine the plan of the city, and then evaluate the city. Usually their "buildings" are made from boxes which explains the name.

The **Box City** curriculum which Haltom used has evolved at the Center for Understanding the Built Environment over a 25 year period and has been used with all age students as well as adults in community planning processes. The very nature of the subject matter crosses all disciplines and has made it a highly popular tool with today's academic focus on interdisciplinary approaches to education. The Kansas City Missouri School District and others utilize it regularly through in-service training.

The **Box City** exercise

- incorporates concepts from history, geography, art, politics, city planning and economics
- instills understanding of the development of cities and their present problems and successes
- encourages skills in group cooperation, writing, art, mathematics, spatial relationships
- is experiential and exercises all thinking skill levels in Bloom's Taxonomy
- demonstrates the need for preservation ethics and for future planning

Haltom's particular use of **Box City** and the evaluation methods follow. This is a reprint of an insert which appeared in [illegible] **News**, Volume 15, January, 1993. [illegible] **News** is the newsletter for the Center for Understanding the Built Environment.

Photo courtesy of South Carolina American Planning Association

A PERSPECTIVE ON EVALUATION

Debbie Haltom, Assistant Director, High Plains Educational Cooperative #611, Ulysses, Kansas, offers an interesting perspective on evaluation. Haltom asked the teachers of gifted students in the Cooperative to use Box City as a project for the school year. She comments, "Innovations in education are often tested with gifted students and then move into the education mainstream. We are not saying that an activity or effort in this area is **only** for these students. In fact, in all of our #611 Cooperative programs we are trying to involve more kids. The decision may be made on a project by project basis. If a student shows functionally that a particular activity would be suitable, that student will be involved.

"In looking at various means of assessment, some consider that a paper/pencil test is objective and evaluating a product is subjective. However, evaluation needs to move much more toward product/outcome-oriented assessment. It is more inclusive and tells more about the student than traditional testing. For instance, even in the **entrance** to our programs, we are moving toward more functional assessment.

Community Referenced Curriculum

"Box City and all built environment education activities are particularly good for schools which are involved in an innovative teaching practice called *Community-Referenced Curriculum*. A class will choose a problem in the community and attempt to solve it. Box City is wonderful for this because it involves real problems. Students are motivated when they are involved in real life situations. And it will ultimately make a difference in how our communities work."

Haltom requires a student and teacher evaluation as a part of any project. Using Box City as the activity, Haltom developed a *student evaluation*, a *teacher checklist* for formative evaluation with a *teacher report* for summative evaluation for the 300 gifted students and seventeen districts included in the High Plains Cooperative. The teachers were asked to include Box City as a part of their students' *Individualized Education Plan* as well. (The various forms follow.)

Box Format for the Student Evaluation

Haltom explains use of the box assembly for the Student Evaluation form, "It is fun and stimulating to use a format which varies from the usual question/answer test." The making of the box or cube reinforces a number of math and art concepts as well. Students in gifted programs or school reform programs are involved in self evaluation or metacognitive learning (Bloom's Taxonomy). They need to recognize at what level they are learning. Haltom comments, "We want our students to be aware of the 'aha!' moment when they are learning." As a teacher teaches Box City, it would be appropriate to have conversation with the students which indicates the level at which learning is taking place...

...as students learn architectural details or how a building stands up:

> "Now you are gaining information or developing a **knowledge base.**"

...as students plan the grid for the city or establish the zoning and building use:

> "At this point you are **applying** the skills you have learned **(application)**."

...as students evaluate the city they have created:

> "Now you are discovering the problems you have caused: smog, gridlock, visual pollution **(evaluation)**."

INDIVIDUALIZED EDUCATION PLAN FOR BOX CITY

Most gifted students are involved in some kind of Individualized Education Plan. In reference to the **Box City** activity, an example follows:

GOAL: Student will develop creative and critical thinking skills by participating in the **Box City** project.

Objective I: Gain an understanding of the various ways that people influence the plan of a city when interacting with geography, government, history, and economics.

Activity 1: Student will participate in cooperative learning groups to complete a grid plan for their Box City by completing the four activities outlined on *Plan for the City* and measured by student and teacher evaluation.

Activity 2: Student will complete an *Important Buildings Questionnaire* and *Cognitive Mapping Activities* measured by student and teacher evaluation.

Activity 3: Student will participate in a discussion of city planning principles after listening to a guest speaker and reading *City Planning Principles*; measured by student and teacher evaluation.

Activity 4: Student will complete the *Geo Blocks* activity measured by student and teacher evaluation.

Objective II: Gain an understanding of types of structures and services which the student wants or considers necessary for a well run city.

Activity 1: Student will develop a building using *Structure, Type and Design*; measured by student and teacher evaluation.

Activity 2: Student will assume the role of an actual citizen and role play as described in *Role Playing*; measured by student and teacher evaluation.

Activity 3: Students will collaborate to design and build a Box City using activites outlined in *Construction Phase*; measured by student and teacher evaluation.

Objective III: Develop skill in evaluating processes and products.

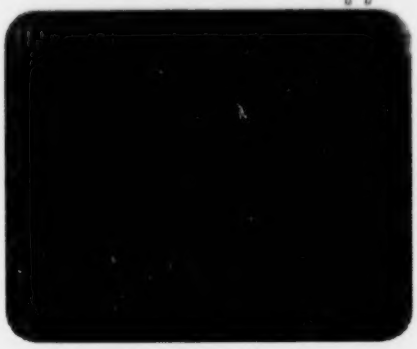
Activity 1: Student will record completed activities, used resources, processes used on the **Box City** *Student Evaluation* form.

Activity 2: Student will sum up the evaluation by completing the **Box City** *Student Evaluation* form.

Activity 3: Student will cut and paste **Box City** *Student Evaluation* form and mold into a box for display with the products.

Activities refer to Box City curriculum. Publisher: archiSources, 5328 W. 67th St. PV, KS 66208.

TEACHER EVALUATION
BOX CITY



CHECKLIST: Student Name: _____

ACTIVITIES:

	Problem-Solving	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Important Buildings Questionnaire							
Cognitive Mapping							
GeoBlocks Activity							
Developed a City Plan							
Developed a Building							
Role Playing							
Evaluated the City							
_____							
_____							
_____							

REPORT FORM:

Describe the accomplishments of this student in terms of processes used and skill development.

_____

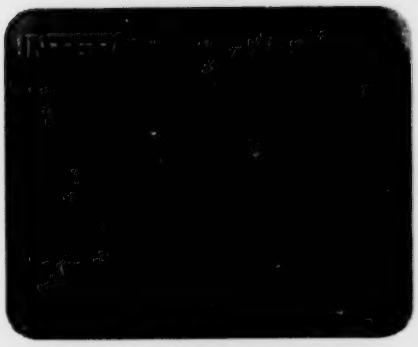
_____

Has the student completed the IEP objectives to meet the goal requirements? _____

_____

_____

STUDENT EVALUATION BOX CITY



The **Student Evaluation Box** provides an example of the kinds of alternative assessment methods and activities which are available. Students use this form after the completion of the Box City project. The Box City curriculum is available from CUBE.

CUBE

1. Cut figure on solid lines.
2. Fold all dotted lines, including tabs.
3. Glue each tab inidivudally and bring together to form walls.

Check activities completed

_____ Important Buildings Questionaire
_____ Cognitive Mapping
_____ Geo Blocks Activity
_____ Developed a City Plan
_____ Developed a Building
_____ Role Playing
_____ Evaluating the City

Check processes used

_____ Problem Solving
_____ Knowledge
_____ Comprehensive
_____ Application
_____ Analysis
_____ Synthesis
_____ Evaluation

TAB

Products I am proud of

1. _____
2. _____
3. _____

TAB

Check resources used

_____ Newspaper
_____ City Plans
_____ Library
_____ Maps
_____ Architects/ Contractor
_____ Designers
_____ Mayor/Commissioners
_____ Museum
_____ Other

TAB

I could have made Box City better if ...

_____
_____
_____
_____
_____
_____
_____
_____

TAB

Box City evaluation

I rate my Box City project performance

_____ Excellent

_____ Above Average

_____ Average

_____

Student Name

TAB

Specific Objective Listings

The following teaching goals and objectives represent the specific objectives as written in the identified teacher's district assessment survey and apply to Assessments 1, 2 and 3. These particular activities represent areas of social studies, math, reading and science. Design and social responsibility are inherent components of all built environment education activities. Of course, a selection of other activities would include outcomes from all curriculum areas. Sample Assessment 4, the High Plains Cooperative, represents a different kind of setting and different needs. Haltom wrote an Individualized Education Plan which follows Sample Assessment 4 narrative and takes the place of *Specific Objectives Listings*.

1. Locate items on a simple map with respect to their relationship to a specific reference point, using cardinal direction. (Raytown School District, Grade 4)
2. Interpret and plot a course on road and city maps. (Ibid.)
3. Use the key on a map to locate features such as state boundary, state name, cities, roads, river. (Ibid.)
4. Increase receptive and expressive vocabulary. (Ibid.)
5. Interpret and plot a course on maps including directions and distance travelled. (Ibid.)
6. Explain how migration has brought about change. (Ibid.)
7. Distinguish between wants and needs. (Ibid.)
8. Apply comprehension strategies by comparing and contrasting. (Ibid.)
9. Describe a shelter which exemplifies the technology of a given culture. (Center School District, Grades 1-3)
10. Describe the multicultural diversity of a region. (Ibid.)
11. Compare and contrast customs, technology and economy of cultures within the Western Hemisphere. (Shawnee Mission District, Grade 6)
12. Write the ratio of one quantity to another. (Ibid.)
13. Find the perimeter when length and width are given. (Ibid.)
14. Give examples of the impact of conflict and cooperation on the development of world civilizations. (Ibid.)
15. Apply process skills of observing, classifying, spatial relationships, using numbers, communicating, formulating models. (Ibid.)

Organizations involved in on-going assessment programs:

Architecture and Children.
Teacher Survey Form and Frequency Analysis Form (How Teachers Talk about Built Environment Education). Send $7.00 to Architecture and Children, Attn: Anne Taylor, 2709 Pan American Freeway NE, Suite G, Albuquerque, NM 87107.

Center for Understanding the Built Environment.
Assessment Monograph and Curriculum Correlation Chart (24 pp.) which relate to the use of CUBE's **Walk Around the Block** and **Box City** curriculum but which would be helpful for anyone writing built environment education curriculum. Send $10.00 (includes shipping) to Center for Understanding the Built Environment, 5328 W. 67th St., Prairie Village, KS 66208.

The Foundation for Architecture.
This organization is involved in a second year grant funded by the National Endowment for the Arts and the Pennsylvania Council on the Arts. It is a three to five year project assessing design education. **InfoLine:** Ellen Freedman, Director of Education, 215/569-3187, One Penn Center at Suburban Sation, Philadelphia, PA 19103.

Kentucky Built Environment Education Consortium.
Bibliography and Assessment Task Suggestions as they relate to the Kentucky project. Send $5.00 to: Joanne Guilfoil, Eastern Kentucky University, 112 Combs Building, Richmond, KY 40475-0940. **InfoLine**: 606/622-2154.

Project ArchiTeacher.
For consulting services relating to evaluation and information on slide-illustrated multiple choice tests for teachers and students. **InfoLine:** Michele Olsen, 217/359-3453, 115 W. Church St., Champaign, IL 61820.

CONCLUSION
THE PARADOX OF ASSESSMENT

Assessing the results of built environment education in the classroom is a constant challenge, need, and must. Not only school superintendents, principals, and educators need to be assured that time devoted to a topic is justifiable in terms of some kind of measurement, but funders also are asking what results we can expect in terms of test scores, behavior, ability to think critically or creatively. Various kinds and types of organizations have approached the development of their curriculum materials to coordinate with the various testing or curriculum correlatives. However, just as mass testing is no longer seen as the panacea for determining a student's growth or future abilities, testing for the specific results of built environment education exposure is also fraught with difficulties.

Dr. Kathryn Loncar, University of Missouri-Kansas City, advises, "we know that pre- and post-tests put a lot of pressure on kids, and teachers are not really happy doing it.

"It is necessary to shut a child up in a vacuum to really accurately measure literacy or numeracy. There are too many other places where kids learn.

"Master teachers teach differently, and measurements are different."

"There are ways to show growth in children *and* teachers."

According to **Michele Olsen**, Project Archi-Teacher, school boards need to see statistics. "Although I am opposed philosophically to the idea of tests, there are ways to show growth in children *and* in teachers. The only way we seem to be able to legitimize ourselves is to be able to show that we've taught something in the way that schools like to see it. With Project Archi-Teacher, we are using what I call 'naturalistic evaluation,' which involves conversations with the students about their work. It is very acceptable."

Alternative assessment methods, for instance, portfolio assessment (including samples of student writing, photos, art work and other output) have long been an important tool for the prestigious International Baccalaureate program. Initiated in Europe by Armand Hammer, this program provides a course of study with consistency of curriculum for students who travel extensively. Portfolio is just **one** of the successful alternative methods for assessment which the education community is re-examining.

It may be that the most important accomplishment of the built environment education movement is to demonstrate that there are new and exciting ways to teach using real-life situations and the community as a primary resource (known as community-referenced curriculum), that traditional tests and scores do not present the entire or even an accurate picture, and that student gains can be measured in other important ways.

This report, in words and pictures, demonstrates the variety of teaching and assessment approaches. An intangible, but exciting by-product of this effort is the enthusiasm and commitment of educators for teaching when individualization can occur, not only in terms of assessment, but in terms of curriculum approach and teaching methods. The built environment offers an easily accessed real life tool for accomplishing all of the above.

Ginny Graves

RESOURCES

Contemporary assessment theory and revision is addressed in every professional publication and is in a radical state of change. For the latest information on assessment, research the most recent articles. We reference only a few of the many which were helpful in identifying concepts and preparing this document.

Graves, Graves, Beasley-Thomas, Schauber. **Walk Around the Block, Using our Communities in the Present to Learn about the Past and Plan for the Future.** Prairie Village, KS: Center for Understanding the Built Environment. 1991. *This specific curriculum was used for Sample Assessments 1, 2, and 3.*

ERIC. Clearinghouse for Social Studies/Social Science Education. 2805 East Tenth Street, Suite 120, Indiana University, Bloomington, Indiana 47408-2698. *This organization disseminates significant materials of interest to the education community through a clearinghouse. Heritage Education and Built Environment Education are two of the cateorgy titles in their search list.*

Graves, Ginny. **Box City, An Interdisciplinary Experience in Community Planning.** Prairie Village, KS: Center for Understanding the Built Environment. 1973. *This specific curriculum was used for the High Plains Cooperative. Sample Assessment 4.*

Jarolimek, John. *Focus on Concepts: Teaching for Meaningful Learning.* **Social Studies and the Young Learner**. Jan.-Feb., 1991. Vol. 3, #3. pp. 3-5.

Loncar, Dr. Kathryn. **Assessment Studies**, *Assessment Study Notes, complete file*. University of Missouri Kansas City. September 1992-1994.

Super Science Teacher, published 8 times a year by Scholastic Inc., 2931 E. McCarty Street, P.O. Box 3710, Jefferson City, MO 65102-3710.

For information about current titles in built environment education, send $2.50 for sample packet of resources including newsletter, to archiSources, 5328 W. 67th St., Prairie Village, KS 66208. 913/262-0691.

HOW TO USE THE CURRICULAR CORRELATION CHART

Each state has a comprehensive listing of mastery objectives which may be called by various names such as essential elements, key skills, or objectives. In addition, each school district may have adopted additional objectives. Within each objective, various skills or learning outcomes are specified according to grade level and subject matter.

In this particular document, Center for Understanding the Built Environment (CUBE) has attempted to produce a generic listing which would be helpful nationally. It may be worthwhile to pull out the specific objectives and skills for particular grade level, district and state if your program focuses very specifically.

The Objectives and Skills in this *Curricular Correlation Chart* are applicable in various degrees of difficulty, K-8. In instances where one activity seems to be relevant for all listings, we have limited the number of check marks (✓) to those which are most pertinent to that activity. The activity listings at the top of the *Curricular Correlation Chart* relate only to the project activities in the **Walk Around the Block** curriculum.

Identification of Objectives

The curricular objectives were identified by CUBE with the assistance of educators and an independent evaluator. There is a great deal of overlap with the CUBE-produced **Box City** and **Walk Around the Block** and almost any built environment curriculum. The process of assessment of these curriculum materials would be similar to assessing other materials which are available. One may emphasize art, or science, or math, or social studies depending on the author's expertise. Note that the last page of the *Curricular Correlation Chart* breaks out the cross disciplinary skills and lists objectives for competency in the area of built environment education in general.

Not designated in this chart are the culminating activities from **Walk Around the Block**, which by their nature, are totally interdisciplinary but also speak strongly to a CUBE objective, or general objective for built environment education which CUBE labels Responsible Behavior. In some school districts these skills may be called social skills.

Chart Serves as Model

Please note the following comment from Dr. Kathryn Loncar, University of Missouri Kansas City School of Education, regarding usage of the chart, "The following pages are a graphic display of some of the major content objectives and skills that are included in the **Walk Around the Block** curriculum. The list of objectives and skills under each of the content areas is not a comprehensive list. It is offered as a model of the kinds of objectives and skills the **Walk Around the Block** curriculum makes possible. As you use the various activities in the curriculum, and tailor them to your community, you will find other objectives and skills that you can incorporate into the activities.

"We recommend that you use the master list as a guide to developing your own list of objectives and skills. You and your students are the only ones who can really define what can be experienced and learned from the **Walk Around the Block** curriculum as you choose to use it in your classroom and your community.

Content is Integral

"We hope you will see that many of the basic skills and content knowledge which we expect to deliver to our students across the grades and across the content areas is included in and teachable through the **Walk Around the Block** curriculum. **Walk Around the Block** is not an 'add-on' to your core curriculum, it is a flexible, relevant, and meaningful way of actuating your core curriculum. We hope you will take the master list, and interface it with your own curriculum objectives and/or learning outcomes to create a learning experience for your students that gives them a firm foundation in some of the basic content area knowledge and skills while at the same time introducing them to the practical and enriching knowledge that is built environment education."

Walk Around The Block Curriculum
Master List Objectives And Skills

Language Arts Skills	Developing The Knowledge Base: Bird's Eye Maps	Defining The Block	Identify Landmarks	Conserving Natural Landmarks	Map Legends	Mapping Your Mind	Group Map Legend	Pace and Scale	Using Map Scale	Structural Systems	Post and Lintel	Structure/House	Understand Land Use	Getting Organized	What's Special?	Practicing The Knowledge Base: City Game	Preliminary Survey	Letter to Owner	Property Survey	Mapping Your Block	Mapping Grid	Look Up Look Down	Visual Survey Forms	Comparative Method	Architectural Key Words	Reading the Streets	Putting The Knowledge Base In Context: Oral History	Family Folk Tales	Photo Record	Making A Bar Graph	Coordinates/Plotting	Time Line	Important Events	Assessing Responsibility: The 4th R: Landmark Postcards	Adopt A Building	Evaluate A Building	Report Card/Building	Discuss Built Environment Issues	How Does Your City Work?	Conserving Energy	What Is? Was? Could Be?	Action Letter	Recycling/Adaptive	Economics/Decision Making	City Beautiful Award	Talking Buildings	Creating/City Game	Issues/Challenges
Learn the appropriate behaviors for group conversations	✓	✓		✓		✓					✓		✓						✓								✓		✓									✓	✓										
Use writing to record observations and actions		✓		✓				✓			✓		✓			✓	✓		✓	✓							✓	✓			✓	✓			✓	✓	✓		✓								✓		
Use words and images together to communicate and inform		✓		✓		✓		✓	✓		✓		✓			✓	✓		✓	✓	✓	✓	✓	✓				✓	✓		✓	✓		✓	✓						✓		✓		✓			✓	
Use writing to create a formal report			✓																												✓			✓	✓	✓												
Write a business letter													✓				✓																						✓			✓							
Read and interpret environmental print		✓														✓	✓		✓															✓														
Use print media and reference materials as resources			✓																				✓				✓	✓			✓	✓		✓	✓					✓								
Create and use symbol systems to accompany print	✓	✓		✓	✓	✓													✓	✓	✓										✓																	
Learn precise use of words/terminology in specific contexts	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓			✓	✓	✓	✓				✓						✓	✓	✓		✓		✓							✓	
Use oral language as means of transmitting/preserving info																										✓							✓			✓	✓	✓		✓								
Use writing to transcribe oral information and story																										✓	✓						✓				✓								✓			
Learn the structure and sequence of story																										✓	✓			✓	✓		✓												✓			
See the cause and effect in story																										✓	✓			✓	✓		✓				✓			✓	✓			✓			✓	
Learn to differentiate fact from opinion in story																										✓	✓			✓	✓		✓															
Learn to infer information from context																										✓	✓			✓	✓		✓					✓	✓	✓								
Understand value of story in preserving/conveying info																	✓									✓	✓						✓							✓			✓	✓			
Mathematics Skills																																																	
Numbers for counting and sequencing			✓					✓	✓		✓					✓			✓	✓	✓	✓	✓			✓		✓			✓	✓				✓	✓	✓	✓		✓		✓					✓	
Arithmetical operations in specific applications	✓							✓	✓		✓																						✓	✓	✓	✓						✓					
Understand use of numbers as identifying/ locating labels			✓	✓													✓		✓							✓				✓	✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓	
Numbers to measure					✓			✓	✓		✓								✓	✓																													
Describe geometric patterns																✓			✓	✓	✓	✓	✓																									
Graphs/grids to convey and manage quantitative data																				✓												✓																
Surveys and tallies to manage quantitative data																			✓			✓										✓																
Social Studies Skills																																																
Understand private and public areas of responsibilities	✓			✓		✓						✓					✓	✓									✓			✓			✓			✓			✓	✓	✓	✓	✓					
Understand the complex make-up of a neighborhood	✓	✓				✓						✓				✓	✓		✓	✓						✓	✓	✓			✓		✓	✓			✓			✓		✓	✓	✓	✓	✓		
Understand the history and evolution of a neighborhood				✓	✓												✓										✓	✓	✓			✓	✓			✓			✓		✓	✓			✓	✓		
Use a time line as a way of organizing information				✓													✓	✓		✓	✓						✓	✓	✓			✓		✓	✓	✓	✓	✓	✓		✓		✓	✓	✓			
Science Skills																																																
The relationship of the natural and built environments			✓	✓	✓		✓						✓				✓	✓		✓	✓							✓			✓																	✓	
Understand physical principles of basic structures as tension										✓	✓	✓										✓	✓	✓																								
Understand problems, practices responsible behaviors					✓																						✓			✓	✓											✓						
Understands process skills				✓				✓	✓	✓		✓				✓			✓			✓			✓		✓	✓	✓				✓			✓	✓	✓	✓		✓	✓				✓	
Understand physical features Earth's surface			✓	✓	✓		✓							✓		✓	✓		✓	✓		✓			✓		✓																					

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Walk Around The Block Curriculum
Master List Objectives And Skills

The Arts	Developing The Knowledge Base	Bird's Eye Maps	Defining The Block	Identify Landmarks	Conserving Nature's Landmarks	Map Legends	Mapping Your Mind	Group Map Legend	Place and Scale	Using Map Scale	Structural Systems	Post and Lintel	Structure/House	Understand Land Use	Getting Organized	What's Special?	**Practicing The Knowledge Base**	City Game	Preliminary Survey	Letter to Owner	Property Survey	Mapping Your Block	Mapping Grid	Look Up Look Down	Visual Survey Forms	Comparative Method	Architectural Key Words	Reading the Streets	**Putting The Knowledge Base In Context**	Oral History	Family Folk Tales	Photo Record	Making A Bar Graph	Coordinates/Plotting	Time Line	Important Events	**Accepting Responsibility: The 4th R**	Landmark Postcards	Adopt A Building	Evaluate A Building	Report Card/Building	Discuss Built Environment Issues	How Does Your City Work?	Conserving Energy	What Is? Was? Could Be?	Action Letter	Recycling/Adaptive	Economics/Decision Making	City Beautiful Award	Talking Buildings	Creating/City Game	Issues/Challenges
Choose appropriate media		✓			✓								✓							✓										✓	✓						✓	✓						✓			✓		✓		
Understand elements and principles of design			✓		✓						✓										✓	✓	✓	✓	✓	✓	✓	✓						✓					✓				✓								✓		
Interpret visually recorded experiences		✓				✓				✓					✓				✓			✓		✓	✓	✓					✓	✓	✓		✓		✓	✓		✓							✓					
Understand social content of art and architecture				✓	✓													✓															✓				✓		✓			✓					✓	✓	✓			
Able to describe architecture and use vocabulary									✓	✓	✓	✓	✓	✓					✓			✓				✓	✓	✓								✓	✓	✓	✓	✓			✓						✓		✓
Demonstrate personal, group and cultural relationships w art																✓		✓									✓	✓								✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓

Cognitive Skills	Cognitive Skills	Cognitive Skills
Understand the use of symbols/symbolic representation	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓
Gather data through visual observation/ use of senses	✓ ✓
Compare recordings of like information and materials	✓ ✓
Gather data through experimentation, modeling, research	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

Walk Around The Block Curriculum
Master List Objectives And Skills

Built Environment	**Developing The Knowledge Base**	Bird's Eye Maps	Defining The Block	Identify Landmarks	Conserving Natural Landmarks	Map Legends	Mapping Your Mind	Group Map Legend	Pace and Scale	Using Map Scale	Structural Systems	Post and Lintel	Structure/House	Understand Land Use	Getting Organized	What's Special?	**Practicing The Knowledge Base**	City Game	Preliminary Survey	Letter to Owner	Property Survey	Mapping Your Block	Mapping Grid	Look Up Look Down	Visual Survey Forms	Comparative Method	Architectural Key Words	Reading the Streets	**Putting The Knowledge Base In Context**	Oral History	Family Folk Tales	Photo Record	Making A Bar Graph	Coordinates/Plotting	Time Line	Important Events	**Accepting Responsibility: The 4th R**	Landmark Postcards	Adopt A Building	Evaluate A Bldg.	Report Card/Building	Discuss Built Environment Issues	How Does Your City Work?	Conserving Energy	What Is? Was? Could Be?	Action Letter	Recycling/Adaptive	Economics/Decision Making	City Beautiful Award	Talking Buildings	Creating City Game	Issues/Challenges
Define various kinds of maps	✓	✓					✓						✓																																								
See similarities and difference in various kinds of maps	✓	✓					✓																																												
Read various maps including bird's eye, sanborn, land use	✓	✓					✓		✓				✓																																							
Understand value of maps for recording information	✓	✓				✓	✓		✓				✓								✓																															
Understand value of maps for planning	✓	✓				✓	✓		✓				✓																																							
Understand how and why maps are made	✓	✓			✓	✓	✓	✓	✓				✓								✓																															
Understand the terminology of maps		✓	✓	✓	✓	✓		✓					✓								✓																															
Understand the symbols and legends of maps	✓				✓	✓	✓	✓	✓												✓																															
Devise and use map legends					✓	✓	✓														✓																															
Draft maps using conventional and original symbols		✓				✓	✓	✓					✓					✓			✓																															
Understand pace as a measuring tool								✓																																											
Understand the nature and use of various kinds of scale								✓	✓												✓	✓																														
Convert reality to scale and scale to scale									✓												✓	✓																													
Define street layouts, block lengths, landmarks	✓	✓	✓			✓							✓					✓			✓															✓															
Understand the concept of land use													✓				✓	✓			✓																														✓	
Understand the conventional codings for land use							✓						✓							✓																															
Define a block for study		✓			✓									✓							✓																														
Understand/use basic terminology for architecture													✓									✓	✓	✓	✓											✓	✓	✓											✓	
Understand basic characteristics of arch. structures										✓	✓	✓									✓	✓	✓	✓	✓									✓	✓	✓	✓										✓	
Understand the diverse make-up of block															✓	✓	✓		✓				✓	✓	✓		✓	✓	✓			✓	✓				✓	✓	✓	✓			✓			✓	✓		
Understand differences in public and private parts of block															✓	✓			✓				✓	✓	✓		✓		✓						✓	✓	✓	✓	✓	✓		✓	✓		✓			✓	
Understand effect of history on present conditions																✓			✓				✓		✓		✓	✓	✓			✓	✓		✓	✓	✓	✓	✓		✓	✓		✓			✓	
Draft sketches of structures/other physical features of block														✓	✓								✓		✓		✓	✓	✓						✓	✓					✓			✓			✓	
Identify components of structures/other parts of a block															✓	✓	✓	✓					✓		✓				✓						✓	✓	✓	✓	✓								✓	
Identify uses and characteristics of structures																							✓		✓		✓	✓	✓						✓	✓	✓	✓	✓		✓	✓		✓			✓	
Understand evolution of a block through individual parts																											✓	✓	✓	✓	✓	✓			✓	✓		✓			✓			✓		✓		✓
Understand need for preservations/maintainance of structures														✓							✓														✓	✓					✓	✓	✓	✓	✓			✓
Understand interrelationship of natural and built environment			✓	✓										✓				✓			✓								✓								✓				✓								✓

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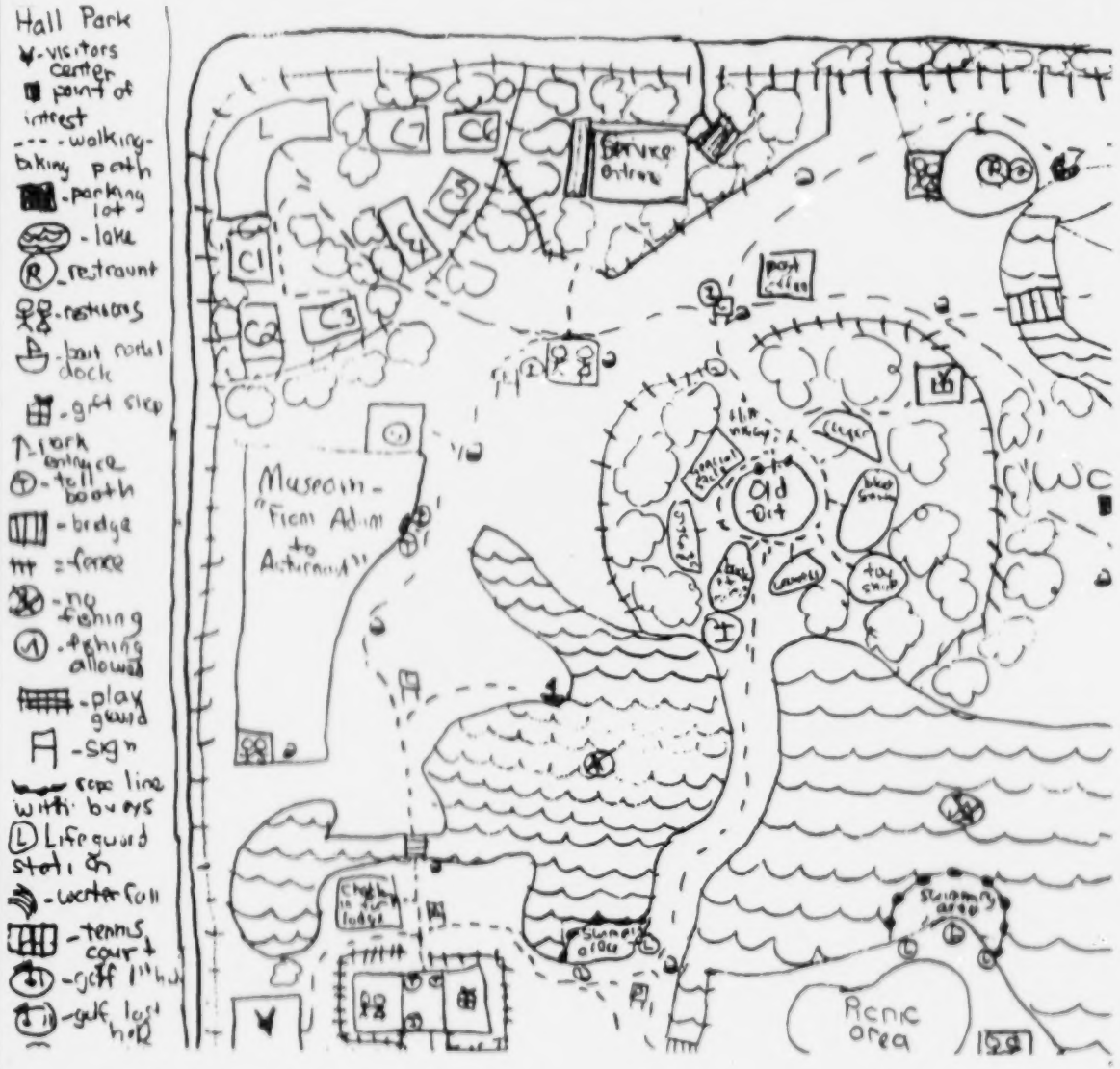
An Evaluation of Built Environment Education in the Curriculum

A Study to Identify Methods for Integration, Teaching Strategies and Alternative Assessment for Built Environment Education



Hall Park, designed by Thomas Hall